Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Claims 1, 5-8, 10, and 17 are amended.

Listing of Claims:

1. (Currently Amended) A method for the modulating of a multicarrier signal with a density $1/(\nu_0.\tau_0)=2$, formed by successive symbols, each comprising M samples to be transmitted and constituted by a set of 2M orthogonal carrier frequencies in the real sense,
the interval between two neighboring carrier frequencies being equal to ν_0 and the interval between the times of transmission of two consecutive symbols, or the symbol time, being equal to τ_0,
each of said carrier frequencies being modulated according to one and the same modulation prototype function g(t) with a truncation length of $2L\tau_0$,[[,]] L being an integer representative of said truncation length,
comprising, at each symbol time, the following steps:

- obtaining a set of 2M complex coefficients representing data to be transmitted;
- computing 2LM linear combinations from said 2M complex coefficients obtained, said combinations using weighting coefficients representing said prototype function g(t), so as to obtain 2LM coefficients;
- summing said 2LM coefficients weighted in predetermined storage locations of a memory comprising 2LM storage locations representing 2L groups of M distinct partial sums, so as to gradually form, in said 2LM storage locations, over a duration of $2L\tau_0$, M samples to be transmitted; and
- transmitting said samples to be transmitted.

2. (Previously Presented) Method of modulation according to claim 1, wherein a sample to be transmitted at the instant $j\tau_0 + k\tau_0/M$, referenced s_{k+jM} is written as follows:

$$s_{k+jM} = \sum_{q=0}^{2L-1} \left[\alpha_{k,q} C_{k,j-q} + \beta_{k,q} C_{k+M,j-q}\right]$$

where: $C_{0,j}$ to $C_{2M-1,j}$ are the 2M complex coefficients generated between the instants $j\tau_0$ and $(j+1)\tau_0$;

$\alpha_{k,q}$ and $\beta_{k,q}$ are said weighting coefficients.

3. (Original) Method of modulation according to claim 2, characterized in that:

- $\alpha_{k,q} = 0$ for q as an odd parity number;
- $\beta_{k,q} = 0$ for q as an even parity number.

4. (Previously Presented) Method of modulation according to claim 3, comprising, for a generation of a symbol with an index j formed by M samples, the following steps:

- obtaining 2M real inputs $a_{m,n}$ representing a source signal;
- pre-modulating of each said real inputs producing 2M complex coefficients;
- reverse Fourier transforming said 2M complex coefficients producing 2M complex transformed coefficients $C_{0,j}$ to $C_{2M-1,j}$;
- for each of the M pairs $(C_{k,j}, C_{(k+M),j})$ of said transformed coefficients, computing 2L weighted coefficients, the weighing coefficients representing said prototype function;
- summing the result of each of said weighted 2LM values to the contents of the 2LM distinct memory zones so as to gradually build the samples to be transmitted constituting the symbols j, (j+1), (j+2),... (j+2L-1); and
- sending M samples corresponding to the M oldest contents of said memory zones and

then resetting the contents of said M memory zones.

5. (Currently Amended) Method of modulation according ~~any of the claims 1 to 4~~ to claim 1, wherein said steps are implemented at the rate τ_0/M of the samples.

6. (Currently Amended) Method of modulation according to ~~any of the claims 1 to 5~~ claim 1, wherein said transmission step is followed by a step for updating said memory locations comprising:

- physical shifting of the contents of each of said memory locations if the ~~latter are~~ memory contains elements of a shift register; or
- updating the write and read addresses of said memory locations, if the ~~latter are~~ memory contains elements of a RAM.

7. (Currently Amended) Method of modulation according to ~~any of the claims 1 to 6~~ claim 1, wherein said 2M complex coefficients representing data elements to be transmitted are obtained by the implementation of a mathematical transform comprising the following steps:

- applying a real reverse Fourier transform;
- [[the]] circular ~~permutation~~ permutating of the result of this reverse transform by M/2 coefficients leftwards; and
- multiplying of each of said coefficients by i^n.

8. (Currently Amended) Method of modulation according to ~~any of the claims 1 to 7~~ claim 1, wherein the signal centered on the frequency $M\nu_0$ is written as follows:

$$s(t) = \sum_{n} \sum_{m=0}^{2M-1} a_{m,n} (-1)^{m(n+L)} i^{m+n} e^{2i\pi m \nu_0 t} g(t - n\tau_0)$$

9. (Previously Presented) A device for modulating ~~of~~ a multicarrier signal with a density

$1/(\nu_0.\tau_0)=2$, formed by successive symbols, each comprising M samples to be transmitted and constituted by a set of 2M orthogonal carrier frequencies in the real sense, the interval between two neighboring carrier frequencies being equal to ν_0 and the interval between the times of transmission of two consecutive symbols, or symbol time, being equal to τ_0, each of said carrier frequencies being modulated according to one and the same modulation prototype function g(t) with a truncation length of $2L\tau_0$, said device for modulating comprising:

- means for temporary storage of 2M groups of M partial sums in temporary storage locations;
- means for weighting 2M complex coefficients representing data elements to be transmitted by weighting coefficients representing said prototype function g(t); and
- means for summing the weighted coefficients in respective predetermined memory locations of said temporary storage locations,

so as to gradually form said samples to be transmitted on a duration of $2L\tau_0$.

10. (Currently Amended) A device for modulating according to claim 9, ~~characterized in that it comprises~~ further comprising:

- means of mathematical transformation delivering said 2M complex coefficients representing data elements to be transmitted at the rate $\tau_0/2M$ and in the following order $(C_{0,j}, C_{M+1,j}),\ldots(C_{M-1,j}, C_{2M-1,j})$;
- storage means including 2LM-M simultaneous read/write RAM type memory locations; and
- N complex multipliers working at the rate $N\tau_0/2LM$, N being equal to 1, 2, 4,...or 2L.

11. (Previously Presented) A method for demodulating a received signal corresponding to a transmitted multicarrier signal with a density $1/(\nu_0.\tau_0)=2$, formed by successive symbols, each comprising M samples to be transmitted and constituted by a set of 2M orthogonal carrier frequencies

frequencies in the real sense, the interval between two neighboring carrier frequencies being equal to ν_0 and the interval between the times of transmission of two consecutive symbols, or symbol time, being equal to τ_0, each of said carrier frequencies being modulated according to one and the same modulation prototype function g(t) with a truncation length of $2L\tau_0$, wherein an estimation of 2M real data elements transmitted at a given symbol time is reconstituted by means of the following steps:

- sampling said signal received at the sample frequency τ_0/M, delivering M complex samples received;

- storing each of said M complex samples received in a predetermined location of an input memory comprising 2ML complex locations, in which there have been previously memorized (2L-1)M samples received during the 2L-1 previous symbol times;

- multiplying the 2ML values contained in said input memory by coefficients representing said prototype function;

- temporal aliasing, by summing up 2M series of L results of the multiplication step, so as to obtain 2M complex values; and

- processing said 2M complex values to form said estimations of the 2M real data elements transmitted.

12. (Previously Presented) Method for demodulating according to claim 11, wherein 2M complex values derived from the temporal aliasing step between the instants $(j+2L-1)\tau_0$ and $(j+2L)\tau_0$ are written as follows:

$$R_{k',j} = \sum_{q=0}^{2L-1} \alpha'_{k,q} r_{k'+(j+q)M}$$

$$R_{k'+M,j} = \sum_{q'=0}^{2L-1} \beta'_{k,q} r_{k'+(j+q')M}$$

where:

$r_{k'+(j+q')M}$ represents the sample received at the instant $k'\tau_0+(j+q')\tau_0/M$;

$\alpha'_{k,q}$ and $\beta'_{k,q}$ are said weighting coefficients.

13. (Previously Presented) Method for demodulating according to claim 11, wherein:

- $\alpha'_{k,q'} = 0$ for q' as an odd parity value;
- $\beta'_{k,q'} = 0$ for q' as an even parity value.

14. (Previously Presented) Method for demodulating according claim 11, wherein said processing step comprises the following steps:

- applying a mathematical transformation that is the reverse of the one performed during the modulation on said 2M complex values delivering 2M transformed values;
- correcting phase and/or amplitude distortions due to the transmission channel; and
- extracting the real part of said transformed complex values.

15. (Previously Presented) Method for demodulating according to claim 11, wherein said steps are implemented at the rate τ_0/M of the samples.

16. (Previously Presented) Device for demodulating a received signal corresponding to a transmitted multicarrier signal with a density $1/(\nu_0.\tau_0)=2$, formed by successive symbols, each comprising M samples to be transmitted and constituted by a set of 2M orthogonal carrier frequencies in the real sense, the interval between two neighboring carrier frequencies being equal to ν_0 and the interval between the times of transmission of two consecutive symbols, or symbol time, being equal to τ_0, each of said carrier frequencies being modulated according to one and the same modulation prototype function g(t) with a truncation length of $2L\tau_0$, said device for demodulating comprising:

- means for sampling said received signal;

- means for temporary storage of the complex samples comprising 2ML complex locations;

- means for multiplying said complex samples by weighting coefficients representing said prototype function;

- temporal aliasing means summing up L weighting results so as to obtain 2M complex values; and

- means for processing said complex values delivering an estimation of 2M real data elements transmitted at each symbol time.

17. (Currently Amended) A device for demodulating according to claim 16, ~~characterized in that it comprises~~ further comprising:

- means of mathematical transformation that is the reverse of the transformation performed during the modulation on said 2M complex values;

- means for correction of phase and/or amplitude distortions due to the transmission channel; and

- means for extracting the real part of said transformed complex values.

18. (Previously Presented) A device for demodulating according to any of the claims 16 and 17, comprising:

- storage means comprising 2ML-M simultaneous write/read RAM type complex memory locations;

- N complex multipliers working at the $N\tau_0/2LM$ rate, where N is equal to 1, 2, 4 ... or 2L; and

- means of mathematical transformation working at the $\tau_0/2M$ rate, whose inputs $R_{0,j}$ to $R_{2M-1,j}$ are read in the order $(R_{0,j}, R_{M,j})$, $(R_{1,j}, R_{M+1,j})$,... $(R_{M-1,j}, R_{2M-1,j})$.

19. (Previously Presented) A filtering method delivering series of M complex output values at regular intervals from 2L series of 2M complex input values, said M complex values corresponding to a weighted sum of 2L of said complex input values to be processed, said filtering method comprising the following steps for each series of complex input values:

-computing 2LM linear combinations from said 2M complex input values obtained, the weighting coefficients being derived from 2L complex or real filters with a size M, so as to obtain 2ML values;

- summing each of the 2ML values in a predetermined memory location out of a set of 2ML memory locations each containing a partial sum so as to gradually form said output values in said 2ML memory locations on a period corresponding to the reception of 2L series of complex input values.